

# AVIATION

*The Oldest American Aeronautical Magazine*

APRIL 2, 1928

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An action picture of the Ireland "Neptune" going into a left turn.

VOLUME  
XXIV

## *Special Features*

NUMBER  
14

The Hall Engine  
Aviation in Brazil  
The Williams Monoplane

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Vol. XXIV

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### Choosing a School

WITH THE coming of good weather many young men will be choosing a flying school, and advice as to how to get training is timely just as hard to give this year as it has been in times past. On the whole the larger schools probably give more efficient training at a lower cost than do smaller schools. The fact that there are fewer students does not necessarily mean that they get more attention because the instructor may have a multitude of things to do besides instructing. In a larger school the instructor specializes on teaching and gains up a vast amount of experience. The larger schools also have the advantage that they have more equipment and that repairs to planes do not hold up the schedule. The airplane dealer who teaches as a side line may have had the experience as instructor but unless he receives good pay for his time he is likely to side track this end of his work at times.

If possible, it will certainly pay a student to go out and see flying instruction going on before he makes a choice. Be sure that the instructors have really had a good deal of experience in teaching. If the school has been established for several years in the same locality it is easy to check on graduates, can be written to, etc. The condition of the equipment is perhaps a more important consideration than whether the school is new or not. Some of the best schools in the country still train on Jennies by preference, but they keep them in good condition. A school which never turns a pupil down so unable to learn how to fly is apt to be pretty short sighted in its policies. Many of the new schools are just as good, if not better, than the old ones, but there are also many of these that talk very big but really have not had the necessary experience. In regard to yourself, ground school and outside work are a nuisance but they really help. Be sure that you can get enough time off so that you can go out to the field at least twice a week, often if possible. Do not leave long intervals when you do not visit the field or you will be wasting your time and will have to learn a great deal over again. On the other hand do not try and crowd your work. There are few students who can take instruction and keep on learning for more than half an hour at a time or for more than ten hours during the course of a day. It takes a certain amount of time to absorb things. It is highly advisable to take a medical examination before learning to fly; you may have defective vision and not be able to focus properly the landings. Do not start taking flying instruction unless you will have money enough to finish, and above all do not go to a flying school just because the course is cheap.

### Airport Advertising

NOW THAT the development of the airplane has reached the point where it is receiving universal recognition as the coming means of transportation the old familiar term "flying field" is being dropped in favor of what is perhaps a more expressive and more expressive term...airport.

The term "airport" immediately suggests of a large expanse of level ground, because, floodlights, hangars, etc., whereas "flying field" merely indicates the presence of a few loosely covered airplanes and a hangar or two. There are no airports today a great number of airports that really are airports in every sense of the word, but there are also some places of ground that are called and advertised as airports when in reality they are nothing more than unexcused roughed surfaced farm fields. In fact a few of them are so full of ruts and bumps that they could hardly be called emergency landing fields.

The almost overnight establishment of these "airports" is the result of their owners suddenly realizing the value of the airplane in business. From the standpoint of the man in the street that realization first came into being when Colonel Lindbergh made his famous flight from New York to Paris. Since that time practically every city and town in the country has made some sort of an effort to establish an airport and thus attract aviation to its door. Some have obtained expert assistance and advice while others have gone ahead recklessly, but all have worked with the same idea in view. To strive to encourage flying by the establishing of a location for flying operations is a worthy undertaking that is most helpful to the cause. But, for a city, town or individual to advertise the existence of an airport when such airport is little more than an uneven or swampy two by four plot of ground, is not only a misrepresentation of facts but to a certain extent it is unlawful advertising.

Airplane manufacturers have of late been severely criticized for statements contained in their advertisements and numerous have been subjected to being about the cessation of misleading airplane advertising. Such being as it seems only fair and logical that similar steps should be taken regarding the advertising of airports.

When the Department of Commerce completes its rating of airports and the findings are published, then will the cross-country pilot be able to ascertain what landing facilities are at the other end of his journey. But until that time it will be to his advantage to find out, either by asking pilots who have been there or some other way, just what to expect rather than take things for granted because the particular site to which he intends to fly is advertised as an airport.



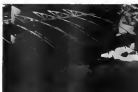
# The Williams Monoplane

A Single Place, Open Cockpit, Low Wing Monoplane Powered with a Three Cylinder 30 Hp. Anzani Engine

ANNOUNCEMENT WAS recently made by the Nieuport Corp. of Nieuport, Mich., of the completion of its first product, a single place, open cockpit, low wing monoplane powered with a three-cylinder 30 hp. Anzani engine. This first model, which has been named the "Williams monoplane" after James R. Williams, president of the corporation, has a full cantilever wing before the fuselage. It weighs only 440 lb. empty. Construction, construction is followed except that the tail skid, which is a wheel, is built as an integral part of the fuselage and is fitted with a shock absorber. The first single place model is powered with an Anzani engine. It is understood that the design is being altered slightly, changing it to a two place side-by-side model powered with a 40-45 hp. Suckley engine.

According to Mr. Williams, an actual test the plane took off in 50 ft. with a climb very close to 1000 f.p.m. He also states that it landed at about 15 m.p.h., which is perhaps due to the ground effect caused by the low position of the wing. It was designed for a landing speed of 30 m.p.h. and is stated to have a top speed of 80 m.p.h. and a cruising radius of 300 mi.

The wing has a span of 26 ft. and a chord of 4 ft. 6 in. giving an area of 106 sq. ft. The overall length of the plane is 15 ft. while it stands only 6 1/2 ft. high with tail skid on the ground. The plane is so designed that it can be assembled in about 15 min. There is no external bracing, the landing gear fitting about the lower fuselage with the mainplane gear being vertical and mounted on the wing spar. The



Showing internal wing construction

given a very wide track with the center of gravity far from the wheel so that plane will right itself instantly on the ground. However, it is believed inadvisable to have a track much wider than this for a plane of this size as it increases the tendency to ground loop.

Perhaps one of the most interesting details of the Williams monoplane is the tail skid, which, besides being mounted

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Front quarter view of the Williams monoplane powered with a 30 hp. Anzani engine

# Aviation in Brazil

Activities Were Confined to the Army and Navy until the Famous Flights Brought About Civilian Interest

By M. C. CREMER

Trade Commissioner, Rio de Janeiro

AVIATION IN Brazil, S. A., has been in the public eye during the past few years as a result of several sensational flights across the Atlantic, and along the coast and Caribbean. Trans-Atlantic aviation have received most of the acclaim and naturally Brazilian and Portuguese states have had showered upon them most of the public praise. The first flight to Brazil that aroused popular imagination was that of Walter Heron, who, with three companions, flew to Rio de Janeiro from the United States. He was given a big ovation. Later he used an airplane to map parts of the Amazon river valley for the National Geographic Society.

Interest in American planes was also fostered by the Pan-American flight of the United States Army, while the airplane flight of Rodin from New Brunswick, N.S., with the possibility of his being lost in the jungle of the north still holds interest. The successes and failures of those who venture upon the Atlantic and Pacific are fully reported by all newspapers, some of them having special columns daily on the first page in which are included aeronautical news from all parts of the world.

Among recent flights to Brazil from Europe, the most attention was given to that of Etienne de Bievre, a citizen of the State of Sao Paulo, who, with three companions, flew to Sao Paulo from Italy. He has become a popular hero with gifts running into thousands of dollars showered upon him and his crew.

In order to stimulate interest in aviation, the Italian Chamber of Commerce is offering a prize of 500,000 lire for a flight from Italy to Sao Paulo. A plane is being built in Italy for this purpose.

## American Planes Being Used

Aviation in Brazil has been, until recently, almost exclusively confined to the army and navy. Both arms of the service are taking a greater interest in aviation than ever before. One private transportation company has been in operation for several months, and two more began flying the first of this year, while plans for another are under way.

American planes are being used by the army and the Sao Paulo state police, and a few individuals have purchased American planes. The army and the new transportation companies will use European planes.

Three groups are interested in the development of air transportation in Brazil, two of them being German and the other French. The east coast of South America leads itself admirably to such transportation by reason of the facility with which the rim of the coast, separated by long distances, can be brought closer to each other, while the proximity of the western part of Africa to that part of South America which projects itself outward into the Atlantic, makes possible the use of airplanes in linking Europe and South America.

The most important group appears to be the Societe Latineo-Africaine, operating through the Co. General d'Entreprises Aeronautiques. The latter corporation has been organizing several lines between southern France and the north coast of Africa. Negotiations in Brazil were first carried on through a Brazilian subsidiary called the Co. Brasileira de Empreendimentos Aeronauticos, and authorization permitting operations was secured from the Government. No funds or subsidies were received from Brazil, but the French Government has granted the company the same subsidy for its South American lines as that given for the lines in South Africa. This amounted to 6,500,000 francs in 1931, and will amount to 30,000,000 francs in 1935, and succeeding years. Payments are to be made at the rate of one franc per kilometer for each plane and 12 francs per kilometer for airplanes. (The bill authorizing this subsidy was passed by the French Chamber of Deputies on Dec. 30, 1931.)

Operations in Brazil are to be carried on by the French company named as the Brazilian subsidiary, and offices have been opened in Rio de Janeiro.

## Service Started in January

The service was inaugurated in January 1935, and extends from Toulouse and Marseilles to Buenos Aires. The route followed is: Toulouse and Marseilles, France; Atlantic, Spain; Tangier, Morocco; Casablanca, Morocco; Agadir, Morocco; Cape Juby, Rio de Ouro, Villa Cisneros, Rio de Ouro; Porto Etienne, French West Africa; St. Louis, Senegal; Porto Fata, Cape Verde Islands; Funchal de Madeira Island; Natal, Rio Grande do Norte; Recife, Pernambuco; Maceio, Bahia; Cuiabá, Goias; Belém, Pará; Valença, Espírito Santo; Rio de Janeiro; Santos, São Paulo; Florianópolis, Rio. Catarina; Porto Alegre, Rio Grande do Sul; Pelotas, Rio Grande do Sul; Montevideo, Uruguay; Buenos Aires, Argentina.

It is planned later to extend the service to Chilean cities. The airplanes will be used between St. Louis, Senegal, on the African coast and Porto Fata, on the Cape Verde Islands, where no more will be used between the island of Funchal de Madeira and Natal on the coast of Brazil. Between Funchal de Madeira and Porto Fata are fast airplanes will be used which will make the crossing in three days. The company expects to later use powerful airplanes to make the trip across the Atlantic. Four planes are in Rio de Janeiro and two are in Buenos Aires, while six more are on the way. Thirty machines will be used in South America.

A trip is to be made in eight days once a week and it is expected that the wrong in time will come enough to be so needed to warrant the investment. At present, the average time required for a letter to go from Bordeaux to Rio de Janeiro and Buenos Aires is 12 and 18 days respectively, whereas the proposed air service will deliver it at Rio in 9 1/2 days and Buenos Aires in 7 1/2 days. When airplanes

Continued on page 856







## Curtiss Robertson OX-5 Commercial Monoplane Now Nearing Completion

THE FIRST "Curtiss Robin" for the Curtiss Robertson Aeroplane Manufacturing Co. of St. Louis, Mo., is now nearing completion at the Garden City, N. Y., plant of the Curtiss Aeroplane & Motor Co., Inc. The production model, the first of which is expected to be completed about July 1, will be built at the factory of the Curtiss Robertson company. The first unit of this plane is under construction at the Lambert-St. Louis Flying Field, St. Louis, Mo.

The "Robin" was designed by Maj. William B. Robertson and the Curtiss engineering staff. The plane is a three-seater, externally braced monoplane powered with a Curtiss OX-5 engine. It has a high wing of wood construction attached to the top of a welded steel tubular fuselage housing a pilot in front with two passengers behind all in a closed cockpit. The control is provided with the rear seat controls removable. The cabin will be well upholstered and fitted with an up-to-date instrument board.

Externally the plane appears to be quite conventional with two supporting struts from the bottom of the fuselage to the wing. The landing gear is mounted in these struts as well as to the fuselage. Landing wheel is mounted on a "swing" wheel. The engine mount for the OX-5 engine is detachable so that other power plants can be used. The radiator for the water cooled installation is in front of the engine between the V of the cylinder.

Tests in the Garden City plant indicate that the plane will have an exceptionally high performance compared with other similar designs. It is expected to sell in the neighborhood of \$6000.

## Micarta Propellers for OX-5's Now Being Produced by Westinghouse

PRODUCTION HAS been started on what is believed to be the first adjustable pitch propeller designed specifically for the Curtiss OX-5 engine. This new model Micarta propeller manufactured by the Westinghouse Electric & Manufacturing Co. of East Pittsburgh, Pa., has detachable blades with pitch adjustable on the ground. It is noted that this new propeller has been tested at Wright Field, Dayton, O., and shows a speed range from 75 to 150 m.p.h. As the OX-5 Micarta propeller weighs only 42 lb. when mounted with the flexibility that is claimed for it, many advantages over some of the other types now in service.

Estimates show that there are approximately 1,500 planes in service in this country powered with OX-5 engines, while it is known that most manufacturers have a considerable stock on hand. Micarta propellers are also made for practically all of the standard engines up to 225 hp. They consist of a specially woven cotton fabric impregnated in phenolic resin pressed under heat and pressure in a polished bronze mold in the general shape of the blades after which they are cut, machined and balanced. The propellers are finished only by removing the heat and "fin" incidental to molding. It is claimed that they are unaffected by heat or moisture.

## Full Time Production in New Plant Begun by American Eagle Company

THE AMERICAN EAGLE Aircraft Corp.'s new factory at Kansas City, Mo., has been placed on a full time basis, according to an announcement by E. Patrick Farber, Jr., president and general manager. The company, according to Mr. Farber, has removed orders that will keep the factory running at full capacity for six months. The company plans

to have cleared from the 13th place up among the first six aviation companies in point of plane contracting within the last year. Seven new orders have been signed up by the company in the last few days. One new plane is a small biplane. City has placed an order for five planes.

## Low Wing Monoplane Built in Soviet Russia Weighing Only 295 Lb. Empty

SOME INFORMATION was recently received on a light, low wing monoplane recently completed in Soviet Russia. The O-4 Boverstedt in single motor, wood construction, open doors powered with a 20 hp. Boverstedt engine. It is claimed to have a speed range from 28 to 70 m.p.h. with a climb of 548 ft. per min. and a ceiling of 13,000 ft.

Only meager details on the structure are available. The wing is internally braced with a cantilever landing gear attached at the lower hinge. The plane has a span of 20 ft. 6 in., length overall of 18 ft. 11 in., height 5 ft. 7 in., wing area 140.3 sq. ft., weight empty 295 lb., useful load 300 lb., and a total weight of 515 lb.

## Hall-Scott Engines Being Rebuilt As Air Cooled by Dayton Company

THE DAYTON ALKAPLAN Engine Co. of Dayton, O., has completed preliminary work on the "Dayton Cub," a four cylinder in line air cooled engine constructed from the Hall-Scott A-7a water cooled engine. The new power plant will develop 125 hp. at 1500 r.p.m. It will be realized that the water cooled Hall-Scott engine developed 116 hp. at 1400 r.p.m.

As an air cooled engine the Dayton Cub will resemble the English Cirrus engine which has a similar cylinder disposition though it is somewhat smaller. Plans are being completed for a 58 lb. test.

## Heywood Injection Starter is Now Standard Equipment on Buhl Planes

HEYWOOD INJECTION starters of improved design manufactured by the Heywood Air Appliances Corp., Detroit, Mich., are now standard equipment on all planes built by the Buhl Aircraft Corp. of Marysville, Mass. These starters are also being installed on Stinson and Mahoney planes. The starter, which weighs only 27 lb., consists of a small air tank attached to a distributor belt to the engine. Compressed air enters the cylinder on the power stroke turning the engine over at from 200 to 500 r.p.m. until the engine starts. These starters have been used on engines up to 600 hp.

## Aero Corp. of California Changes Rates on Three Passenger Routes

NEW RATES for trips from Los Angeles to Phoenix, Ariz., and Tucson, Ariz., and from Phoenix to Tucson have been announced by the Aero Corp. of California at Los Angeles. This company operates a passenger service over these routes using Fokker cabin planes. The new charges are as follows:

Los Angeles to Phoenix	..... \$25.00
Phoenix to Los Angeles	..... 25.00
Los Angeles to Tucson	..... 35.00
Tucson to Los Angeles	..... 35.00
Phoenix to Tucson	..... 15.00
Tucson to Phoenix	..... 15.00

## Congressional Medal is Bestowed On Lindbergh in Washington, D. C.

HIGHEST of United States decorations, the Congressional Medal of Honor, was presented to Col. Charles A. Lindbergh by President Coolidge at Washington, D. C., on Mar. 21 in the presence of members of the Cabinet, Senate, House, and Army and Navy officials. The medal was bestowed on the pilot under the terms of the law granting him the honor voted by Act of Congress Dec. 14, 1927.

At the office of the Secretary of War a few minutes before the ceremony, Mr. Dene presented Colonel Lindbergh



Moving toward the Congressional Medal of Honor around Col. Lindbergh's neck, President Coolidge congratulates the pilot. Vice President Dene stands at the Colonel's left.

with the Green Ensign, as he took of gold, and with a special note from the Senate, House and President. The Green Ensign, a handsomely bound volume, records Lindbergh's trans-Atlantic flight and contains an address from the Senate as well as many famous signatures.

The day of the presentation was a busy one for the Colonel. He also appeared before a House committee and before a Senate committee, signing a separate proclamation for the Army Air Corps and asking for a higher pay scale for the service.

## Production on New Biplane Begun By Victory Company in California

HAVING COMPLETED the installation of all machinery in the new factory at Lakeshore Blvd. and Stevens St., North Hollywood, Calif., the Victory Aircraft factory is now in production on the first model of the new three plane Victory biplane. Following completion of this plane, a total of four planes will be built and from then on the present plant will be operated at its capacity of one plane a week.

The present factory is 40 by 80 ft. in size and contains a very complete equipment of machinery necessary for the quality production of aircraft. The factory is located on a 20 acre field suitable for fly-away delivery and the testing purposes.

The plane under construction is a three plane open cockpit biplane powered with an OX-5 engine. The Victory Aircraft Corp. is capitalized for \$50,000 under the laws of the state of California; it is a closed corporation

and is wholly financed by prominent citizens of North Hollywood.

The officers of the company are: F. W. Hilde, president; James Swisher, vice president; Stanley Collins, treasurer; E. K. Benson, secretary; William Shaffer, general manager; and Edward Smith, business manager. The directors are: Ford Hardy, E. J. Wooten, D. Hartman, R. E. Dawson, Jack Gosnell, George McCarthy, J. D. Maguire, and Dr. C. J. Simon.

## B. F. Mahoney Company Will Retain San Diego Plant for Year or More

THE B. F. Mahoney Aircraft Corp. has now decided to retain its San Diego plant at least one more year and not move all its activities to St. Louis immediately, as concerned recently. It is planned, rather, to increase the company's working force and plane production at San Diego. J. C. Nelson, vice president and general manager, has announced Nelson stated that the San Diego factory would be "adequately" as long as business justified its retention. It is planned to increase mass production to 10 planes a month instead of nine as under the present schedule. Approximately 100 skilled employees are now working at the San Diego plant, besides the number employed at monthly pay.

The first unit of the company's \$200,000 plant in St. Louis probably will be ready within five or six months, say officials. The Missouri factory will take care of the Mississippi Valley and eastern markets and will permit a practical interchange of planes when necessary between the San Diego and St. Louis locations.

## Kansas Offers a Prize of \$1,000 For Best Airway Marking Scheme

A PRIZE of \$1,000 for the best suggestion for the marking of airways is offered by Woody Hockaday of Wichita, Kan., who is well known for marking, as an advertising venture, more than 300,000 m. of highways in Kansas and Oklahoma before the governments of the two states undertook to direct travelers along these roads.

Hockaday and several other Wichita men recently were granted a charter by the State of Kansas for the American Airways Mapping Association of Wichita. The incorporation was without capital and not for profit.

A national meeting of aviation is to take place at Wichita for the purpose of discussing Hockaday's plan for mapping and marking the air highways of the nation. If the aviators accept his plan, his \$1,000 prize will go to the man submitting the suggestion judged most best to his own.

## Advance List Price of Waco 10 With OX-5 Power Plant to \$2985

WACO 10's powered with the OX-5 engine have been announced in list price from \$2395 to \$2985, it has been announced by C. F. Van Dine, vice manager of the Avco Aero Engine Co., Troy, O., manufacturer of the plane. Prior to the engine, however, it remains at \$2395 F.O.B. Troy.

This advance in price of the OX engine plane follows the general scarcity of this popular power plant. Increases have also been announced during the past month or so in the price of the American Eagle and Alexander Engineering airplanes, both powered with OX engine. The former now sells at \$2515, the latter at \$2770.

## Last Minute Briefs

A 52 day 3000 mi. air cruise of Europe is to be conducted by a number of air service companies in joint cooperation, according to a report from the New York office of the North German Lloyd Steamship Line. That company's line *Caribiana* will leave New York Sept. 3 to reach Bremen-Berlin, Germany, for the start of the cruise.

The newly formed North American Airways Co., of which Earl H. Hanger is president and general manager, will shortly begin operation of a 300 mile airport link to jointly serve Appleton, Neenah, and Menasha, Wis. A Stinson-Detroiter will shortly be delivered.

Commercial aviation has been entered by the Elk River Aircraft Co., recently formed at Elk River, Minn. L. A. Duns is president and general manager, and Vandy Lachin is chief pilot. A 40 acre field has been purchased four miles west of the city on Trunk Highway 2.

The McCook Airways Corp. is being formed at Milwaukee, Wis., by Mark W. McCook, Allan McLaren, and William Williams. McCook states that eight passenger cabin planes are to be used in regular service in the vicinity, a McCormick-Chicago line being considered.

The Yale Motor Corp. of Mohon, Ill., has completed a five cylinder radial engine which has been test lighted and which is expected to be displayed at the All-American Aircraft Show at Detroit in a few weeks.

Ben Johnson of Winona, Minn., has been appointed Travel Air dealer for Southern Minnesota by the South-Dakota Airways, Inc., of St. Paul. A field has been leased and construction started on a hangar at Winona.

The Lansing Aeromarine Engineering Corp., New York City, is completing its first cabin amphibian, a biplane powered with a Pratt & Whitney Wasp engine. It is designed for four to six passengers in addition to the pilot.

The first Fokker F 19 was recently flown at Teikowen, N. J. It is a three Wasp engine monoplane built by the Atlantic Aircraft Corp. to carry 12 to 15 passengers in addition to two pilots.

The Bravo Missouri Aircraft Corp. of Los Angeles, Calif., is completing a four place open cockpit monoplane powered with a Mooney Holmes engine.

J. H. Eastman of Detroit, Mich., has completed a biplane flying boat that is to be on exhibition at the All-American Aircraft Show.

The Stinson Aircraft Corp., Northville, Mich., has completed a monoplane to be known as the Stinson Junior. It is powered with a Warner 125 hp. engine.

The Madison Aircraft Corp., with C. J. Donaher as president, has been formed at Madison, Conn. A Challenger plane has been purchased.

Newly formed at Hammond, Ind., the Beta Air Line, Inc., is operating a 25 mi. sightseeing line over the Chicago-Calumet district.

Capt. George Wilkins is now at Point Barrow, Alaska, preparing to take off in his Lockheed Vega for a flight across the Pole to Spitzbergen.

The Royal Oak Flying Club has been formed at Royal Oak, Mich., and a Waco plane has been purchased by the members for training and pleasure flying.

A production schedule of three planes a week is being inaugurated by the Lockheed Aircraft Co. of Los Angeles at San Bernick, Calif., factory.

A group of 24 men representing 21 aeronautical concerns met recently in St. Paul and formed the Aircraft Association of Minnesota.

The Working Airplane Co. of Minneapolis, American Eagle distributor, has been appointed distributor of the Ryan Stropher.

Palmer Air Service was recently formed at Middleton, O. R. J. Medsker, Tom D. Palmer, Cyrus Farnsworth, William Kozard, and Tom Palmer are the organizers.

Bids will be received by the U. S. Post Office Department, Washington, D. C., until May 21 on three alternate air mail routes between New Orleans and the Mexican border.

William H. Dornis, formerly of the B. F. Mahoney Aircraft Corp., has been appointed service manager of the Ryan Aeromarine Corp. of San Diego, Calif.

Walt Dabek Deters, Inc., of Monroe, La., announces its receipt of the Travel Air distributorship for Louisiana. Travel Air will be used to train students in design.

A new plane known as the "Flagship" was recently tested by Cited Flagg of the Flagship Aircraft Co., newly formed in Kankakee, Ill.

The 125 hp. radial engine built by the Warner Aircraft Corp., Detroit, Mich., has been passed by the Department of Commerce for use in General aircraft.

Paramount Aircraft Corp., Englewood, Mich., is completing a four passenger cabin biplane to be powered with the seven cylinder Warner engine.

Tronal Air Manufacturing Co., Wichita, Kan., is exhibiting a closed cabin biplane at the Detroit Aircraft Show.

The Norwood Aero Club was recently formed at that city in Massachusetts.

## To Hold 11th. Salon Aeronautique Exhibit in Paris June 29-July 15

AERONAUTICAL PROGRESS will be a leading topic in the 11th Salon Aeronautique, an aviation exhibition which is to be held at the Grand Palais, Avenue des Champs Elysees, Paris, June 29 to July 15. The Salon exhibition, held every two years of late, was inaugurated in 1906.

Monuments foreign manufacturers have always had displays at the Salon, and aeromarine "salonniers" from all over Europe, South America, and elsewhere, composed of officers, engineers, and technicians invariably attend. Foreign exhibitors will be permitted to bring their display material in to France "in kind," thus there will be no custom duties to be paid preventing the products brought are transported at the close of exposition. Exhibitors will also obtain reduced railway and steamship fares.

The Salon Aeronautique, being held in the summer time, will offer an opportunity for American manufacturers to reach new markets. Additional information may be obtained by applying to the Aeronautical Chamber of Commerce of America, 205 Madison Ave., New York City.

## New Operating Company at Boston Airport is Headed by E. T. O'Toole

EDWARD T. O'TOOLE, one of the three founders of the Boston Airport Corp. and Boston's first post-war commercial airplane operator, has formed a new operating company and opened offices at Boston Airport to do a general commission, aerial taxi, and aerial service business. The new firm is named the Boston Aircraft Flying Service. The 16 ft. flying machine is offered at \$200. A sliding scale of rates for students has been established with decreasing rentals for planes here until after 30 hr. flying the student can have a plane for \$25 per hour. Landings are charged for over four per hour thus providing a sort of automatic insurance to the operator.

O'TOOLE, who recently resigned from the presidency of the Boston Airport Corp., started work on a new airplane early in winter in his factory at 31 Bevington St., East Boston. The plane is a trapezoid welded steel fuselage and is within a few weeks of completion. Work on the plane has been suspended, however, because of business incident to the new flying company.

## Airplane Fleet in Tour of Kansas As State Observes Aviation Week

THIS WEEK of April 2 has been set aside as "Aviation Week" by proclamation of Governor Parker of Kansas, when the All-Kansas Air Tour will cover the state in the interests of general aviation. This tour was originated and sponsored by the Wichita Chapter of the National Aeronautics Association. Macfarlane Meredith, president of the Wichita chapter, Benson Vaughan, treasurer (and flight commander of the tour), Wilbur Bailey, second vice president, and Ash K. Morrison, N.A.A. governor for the State of Kansas, are among those who will make the tour. In dealing upon the history, officials of the Wichita Chapter of the N.A.A. say two improvements of all cities desiring to be visited; each must have a landing field, and each must operate a chapter of the N.A.A. Twenty-six cities have fulfilled these requirements, and it is estimated that 50 planes will make up the air armada.

## The AIRSEDAN



## Safety

Built under Department of Commerce Certificate of Airworthiness No. 12. Approved for 1000 lbs. payload.

## INSURANCE

Full coverage will be granted for all passengers, because they cannot interfere with the controls.

## SPECIFICATIONS

Seating Capacity	pilot and 4 pass.
Weight Empty	1050 lbs.
Wing Area	320 sq. ft.
Span	42 ft.
High Speed (sea level)	110 M.P.H.
Engine	Wright Whirlwind

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Self Starter, Metal Propeller, Compass, Air Speed Indicator, Navigation Lights, Tachometer, Altimeter, Clock, Fuel Gauge, Fuel, Oil Pressure and Oil Temperature Gauges, Air Corps Throttle, Brakes, and Fuel Valve, Exhaust Manifold with Muffler and Cables Heater, Metal Mail or Baggage Compartment.

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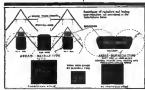
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Price \$12,500 Flyaway  
Completely equipped

**BUHL AIRCRAFT CO.**

Marquette, Michigan

# CONTROL



THE following test pilots have contributed to the demonstration of satisfactory control and advancement in design of the Burnelli airfoil fuselage multiple engine type through the operation of the giant RB1 and 2. Bert Acosta, Clarence Combe, Randolph Page, Lloyd Bertand, Edward Stinson, Howard Rinehart, George Pond, Homer Weyant, Homer Berry and Earl White.

## Some Advantages of the BURNELLI TYPE

Assemblable multiple engine compartment  
Extensive reduction of head resistance  
Reduced turning moment on one engine  
Fuselage lift reduces landing speed  
Increased capacity of the fuselage  
Structural efficiency and simplicity  
Practical Landing Gear Retraction



307 PARK AVENUE, NEW YORK CITY

## The Hall Engine

Continued from page 835

all times, especially if a slight leak occurs in air line, caused by sudden vibration. Although a hand pump is provided for an emergency, the pilot seldom discovers the fall in pressure before a leak has through carburetor tubes flown, which very often causes a fire that destroys the plane.

The air pressure pump for the fuel system is of the rotary sliding vane type, and is driven direct from one of the main shafts. Lubrication of all moving parts is self contained. It is equipped with a thick section glass dome which keeps the oil level in view at all times, the dome enclosing enough oil for two weeks of continuous running. The pump is very



The induction side of the Hall engine showing the three carburetors.

simple as it has only four moving parts, the rotor and three vanes. The oil flows from the dome to the rotor and is returned by the leakage of air back to the dome. This pump has been thoroughly tried out. It was run on a bench test for 100 hr continuously at a very heavy overload of 180 lb. pressure. It has also had 600 hr. of service on motor.

Ignition is furnished by five Dura magneto and two spark plugs per cylinder. The magneto can be mounted on a bracket and integral with gear case cover at rear and of engine, and are driven direct from one shaft gear. They are extremely accessible and can be removed by removing four bolts from each. This engine can be equipped with generator and battery system, or it can be used as a motor. It is provided a source of current for instrument board lights, etc. Provision can be made for an electric starter mounted on the lower half of crankcase on the propeller end of the engine.

A self-shifting thrust bearing is provided in a separate gear housing located in the front end of the upper and lower half of crankcase. This arrangement allows for the replacement of those parts without first having to remove the crankshaft and oil pan, which is generally the case in other aircraft engines. A double bearing is provided so that the engine may be used in either a pusher or tractor manner without change. The upper crankcase is an aluminum alloy casting. The engine frame is constructed through the hold down bolts that extend from the top of the cylinders through the crankcase to the main crankshaft bearing caps. With this arrangement the crankcase has very little expansion stress to support.

The crankshaft is a chrome vanadium steel forging and follows typical open crankshaft practice.

The crankshaft and connecting rods are fitted with bronze bush latched fixed with screws. This arrangement permits the rapid adjustment and the removal of these parts without

any special equipment. This saves the expense of new bearings on horizontal bearings could not be adjusted. They had to be removed.

In making these adjustments it is only necessary to remove the oil pan and the two sets of main bearing caps and the two sets on connecting rod bolts, then remove the caps and use an Allen to take up whatever play there may be in bearing.

The manufacturer's specifications are as follows:  
TYPE: Vertical in line, water cooled.

Number of cylinders ..... 6  
Bore ..... 5 in.  
Stroke ..... 7.5 in.  
Displacement ..... 304 cu. in.  
R.p.m. at sea level ..... 300 at 2000 ft.  
Weight per h.p. ..... 3.33  
Oil consumption ..... 300 lb. per hp. hr.  
Fuel consumption ..... 43 lb. per hp. hr.  
Weight dry ..... 100 lb.  
Compression ratio ..... 4.25 to 1

## Parks Air Line Acquires 100 Acre Flying Field Lying Near St. Louis

A NEW flying field within 30 min. drive from downtown St. Louis has been acquired by the Parks Air Line, one of the flying companies now operating at Lambert-St. Louis Field. It is a 100 acre tract three miles south of the Free Bridge on the Illinois side of the Mississippi.

The new field, topographically, is ideal for an airport and is one of the sites surveyed last summer when St. Louis was setting about for a location for a municipal field. It is flat, smooth, and well drained and is protected by the levee from high water. An electric line, a hard road, and railroad facilities are within immediate reach and the field is less than six miles from Twelfth and Olive streets.

The Parks company took over the tract as a five year lease at a total rental of \$20,000. Operations will begin within a few weeks at the field where the Parks Air Line plans to use its flying school, for which an enrollment of more than 300 students is planned. The company has retained David White, formerly with a school at Marshall, Mo., said to be the largest civilian instruction center in the country from the standpoint of enrollment. White hopes to have enrolled 1800 students by the close of this year.

The Parks Air Line will maintain its quarters at Lambert-St. Louis Field for the present at least. Clyde Rayburn, chief pilot of the company, will be in charge there. He and G. L. Parks, vice president of the concern, are former members of the Marine Corps.

## City Manager of Cincinnati Plans Increase in Lunken Field Budget

TULY C. O. SHREVE, Cincinnati, O., city manager, plans a considerable increase in the \$200,000 budget for 1928 allocated for the development of Lunken Airport. Cincinnati's newly-acquired municipal field, was revealed following a recent meeting of the city council.

Shreve said that he did not think it would be possible this year to spend for a soldier's memorial \$200,000 that had been allocated for that purpose in the program, and that this money, together with from \$50,000 to \$60,000 could be transferred from other enterprises in the air field project.

A total bond issue for airport development carried at the November election was for \$500,000, only a part of which was expected to be available the first year.

426558



Truscon Hangar for the Fairchild Airplane Manufacturing Corp., Farmington, N. H.

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Truscon Airplane Hangars are permanent and fireproof. They are constructed from standardized units which can be combined into buildings of any desired length and width. Being held out in clear spans, their unobstructed floor space assures utmost freedom in handling ships.

## Large Sliding Doors

opening the full width of the building, simplify the storing of planes. We furnish Sliding Doors for any requirements.

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Please quote price on hangar as follows:

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Address.....





## Gordon Aerotogs

protect famous aviator in world's looping record



Clad in a Gordon Aerotog, Spring man, Indiana, U. W. (Speed) Bennett, winner of the Glen A. National Air Derby, on March 17 brought back the world's looping record in the United States. 1925 loops were made in five hours flying time, shattering the record made of the French pilot, Albert Bréguet, by 121 loops. Although he admitted feeling somewhat giddy after the experience, Bennett stated that he had been warm and comfortable the entire time.

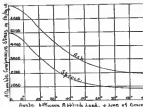
Gordon Aerotogs are manufactured by Gordon and Sons, Inc., 1001 Broadway, New York, N. Y.

which are quite strong. They mutually support each other and thus increase their apparent strength. In the direction perpendicular to the grain they are nearly like cylinders bent extremely little with which break easily.

The compressive loading, i. e., where the line pull makes an angle other than 90 deg. with the axis of the bolt, the values obtained for compressive loading as explained above must be reduced by half. In this type of loading it is especially important that a good steel washer be placed under the head of the bolt to prevent it from pulling through.

As just explained wood can stand compression parallel to the grain much better than across the grain. At the angle of application of a force it is moved from along the grain through 90 deg. until it is perpendicular to the grain the resulting power of the wood is gradually diminished. The compressive strength of spruce and oak through this entire range is shown in Fig. 4b.

In commercial planes sometimes a wrapped steel fitting is used on wooden spars to take the loads of wing struts and wires. It is important that the sheet portion of this fitting



Allowable Compressive Strength of Wood—Load at Angle  
Fig. 4b

be made just as strong as the top. A sufficient area of sheet bearing on the upper side of the spar is also extremely important. This necessary area may be easily computed from the curves of Fig. 4b.

Spruce struts are still used to some extent especially for compression members in the long truss. They are seldom used as support members on their resistance for a given strength is far greater than that of a metal strut. The allowable column load that spruce struts will stand may be read from Fig. 4c.

The curve labeled C-2 may be used when the ends of the struts are built-in or restrained. The curve marked C-1 struts are built-in or restrained. The curve marked C-1 is to be used when the strut is pinned at the ends. The column to the left of the chart reads P/A which is the allowable column load per square inch. This value must be multiplied by the cross-sectional area of the column being investigated to determine the allowable column load P.

The slenderness ratio of the column must be computed. L is the length and A for square or rectangular sections is equal to 256 d<sup>4</sup> where d is the diameter of the circular section.

Plywood is extremely good for the webs of ribs and box spars. The face plies are usually made of spruce, birch, or mahogany. Before woods are used as below, however, and plywood are used, consult carefully for the use. Harder woods are preferable for face plies as they resist abrasion better,

give a harder surface for contact with washers and other fittings, and take fairly well. On the other hand a soft cover reduces weight and expense, gives better gliding surfaces, and reduces the tendency of the joints to warp and break.

As shown above the Face Factor of a box beam is dependent upon the web thickness. It has been found from experience inadvisable to use a thickness of less than 1/8 inch for each web. Even this is rather thin except for small airplanes of 1000 lb. or less. For this size plane or smaller it is probably best to use a solid section instead of a box spar. For a monoplane where the open web sections are great it may be found advisable to use a box spar even for these small planes. Too thin a web however will result in increased deflections and secondary stresses in the spar.

The Department of Commerce shows 1820 lb. per sq. in. longitudinal shear for twenty square inch on two spars. The longitudinal or horizontal shear as it is sometimes called must always be figured for the web of a box spar. The stress for any design may be conservatively figured by the following formula:

$$S = 2 \times R/S \times A$$

where S is the internal vertical shear including the load factor at the section investigated. For spars it is the maximum value of the shear.

A is the total area of the webs at the section. If this value of S is less than 1820 lb. per sq. in. the web is strong enough.

As an example let us consider the box beam illustrated in Fig. 5b. The maximum shear on the beam is 101 which is  $101 \times 108 = 10908$  lb. Total Area of web is:  $2 \times 8 \times 1/8 = 2$  sq. in. Thus S is  $10908 / 2 = 5454$  lb. per sq. in. Margin of Safety is  $1820/10908 = 1.67$ .

In the construction of box spars it is important that stiffeners or narrow spacers should be placed at regular intervals inside the webs and flanges. These reduce the stress somewhat and prevent local buckling of the web.

Copyright Alexander Kleins

To be continued on the next issue.

## To Teach Aviation Fundamentals In Rensselaer Polytech Course

AVIATION'S FUNDAMENTAL principles will be taught to seniors and post graduates in a course to be given next semester at Rensselaer Polytechnic Institute, Troy, N. Y., it has been announced. The course will come under the general head of mechanical engineering and will be concerned with the principles of flying, engine construction, and the like. It is estimated that more than 100 will take the course of which Prof. Grant E. Polignone of the mechanical engineering department will be in charge. In connection with this new work, a group of students have formed the Rensselaer Aeronautical Club of R.P.I.

## Grass Aero Struts Now Standard Equipment on the Ryan Brougham

GRASS AERO Struts are now furnished as standard equipment on all Model B-1 Ryan Broughams built by the H. F. Maloney Aircraft Corp. They are adapted on standard equipment after a set of Aero Struts had been in use on one of the Maloney passenger and service planes for five months. It was the experience of the H. F. Maloney Corp. that the Aero Strut satisfied greatly in making smooth landings or in making short take-offs in lowering, even landing shocks from being transmitted to the structural frame of the plane.

## dependability



The birth right of the new FLOCO A-7-B Static Radial Air-Cooled Engine is absolute dependability. Coming through the most severe tests, both on the block and in the air, with flying colors, FLOCO more than justifies the years of intensive effort spent in producing a quality power plant at a modest cost. Complete Information On Request.

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Graphite Valve Guides . . . . . ea. \$5.00  
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Send us your OIL and GREASE cylinders together with your cylinders and we will return them to you quickly and at small cost.

Nicholas-Baxley Airplane Co., Inc.  
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Over 30 years of experience in supplying and advising with leading Laid, Cessna and Yale Clubs and our intensive study of the construction and maintenance of the best soil for various purposes, places us in a position to give economic and dependable instructions in regard to suitable turf for Airports and Landing Fields. We are glad to offer this knowledge to the aircraft industry.

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#### Airport Formula

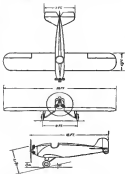
We offer a formula, adapting to no particular soil and the specific conditions, consisting of special instructions of grass seeds that will produce the proper turf for Airports and Landing Fields.

## The Williams Monoplane

Continued from page 826

arrangement is being a wheel mounted in the middle, is fitted with a brake. It is a wire wheel with a leather band mounted at its rim. The rubber is of vulcanized rubber tubing with the wheel mounted in with steel metal. The wheel is shown from the side with the rubber and in addition is shown in, leading to increase the area of the rubber.

On this first model the cockpit is very wide and roomy being fitted with steel mounted and rubber pedals. The engine on the nose is fitted with a sprayer which fans in with the base of the fuselage. Behind the engine and above the pilot's feet is a small fuel tank of 75 gal. shaped to act as part of the fairing above the rectangular fuselage of welded



Three view drawing of the Williams monoplane.

steel tubing. No wire bracing is used, the entire structure being built up in the form of a Warren truss. Behind the cockpit and on the top of the fuselage is a small deck of wood, completing the streamline form. In line with the pilot's head is a fairing extending from the front and of the fuselage and merging into the rubber at the rear. It is braced only by the spacing for the cockpit, which in turn is part of the bracing for the windshield. Excellent vision is afforded in all directions except directly behind the pilot where it is obstructed by the wing.

The wing is of full cantilever construction and according to the manufacturer is very rigid in spite of the lack of any external bracing. The spars are built up of spruce and mahogany plywood in the form of a box spar. The ribs are built up of spruce strips into a Warren truss with birch plywood panels at the joints. Drag bracing consists of welded

steel tubes for compression struts with piano wire diagonal bracing. The wing used is a Goettinger 387.

The manufacturer's specifications on the Williams monoplane with an Anzani 30 hp. engine are as follows:

Length overall ..... 28 ft.  
Height ..... 6 ft. 6 in.  
Span ..... 36 ft.  
Gross weight ..... 1,000 lb.  
Wing area ..... 188 sq. ft.  
Airfoil ..... Goettinger 387  
Weight empty ..... 645 lb.  
High speed ..... 80 m.p.h.  
Landing speed ..... 30 m.p.h.  
Range ..... 300 mi.  
Climb at ground ..... 635 f.p.m.  
Absolute ceiling ..... 15,000 ft.

Applications have been made for the Department of Commerce Approved Type Certificate and it is stated by the manufacturer that quantity production will be started when this has been granted. In the meantime the plane is being employed in preparation for this. The officers of the Niles Aircraft Corp. include James H. Williams, president; Walter Davis, vice president; and Philip B. Frisby, secretary and treasurer. The board of directors include Francis J. Fynn, William F. Elmer and Walter H. Parker.

## Detroit Balloon Club Organized By Lighter-Than-Air Enthusiasts

EDWARD J. HILL, winner of last year's Gordon Bennett International Balloon Race, William C. Naylor, chief engineer of the Stinson Aircraft Corp., and Judge Henry H. Wilbur of Wayne County Probate Court are among those who have organized the Detroit Balloon Club, whose purpose, it was announced, is to promote the use of lighter-than-air craft and sponsor ballooning activities in Detroit, Mich. The organization includes the balloons who held 24 United States and nine world balloon records.

Hill and membership in the club will be open to the public and members will have an opportunity to learn balloon piloting at once. The club now has two balloons of its own, while individual members own three more. It is planned to use the balloons held at Wyandotte for operations and as a point for a series of flights within the near future.

Judge Wilbur, chairman of the committee on arrangements for the Gordon Bennett race in Detroit last year and an active amateur balloonist, is president of the new club. Hill is secretary and Naylor is treasurer. Naylor has served both as pilot and sole in the lighter-than-air craft for several years, while Hill is connected with the Aircraft Development Corp. of Detroit.

## School at Aberdeen, S. D., Offers Full Flying and Mechanics Course

A FULL course in airplane mechanics and flying is now being offered by the State Air, Electrical, and Aviation School at Aberdeen, S. D. Chief Fabbie, who has had some years of aeronautical experience with some 2500 ft. in the air, is chief pilot of the company. He is assisted by Messrs. Hollister and Haskewich, also experienced pilots.

A pilot of the side-by-side dual control type is being used for instruction work. Flying is done at the Aberdeen Airport, which has two 500 ft. half mile runways. Liberty, Higgsbee, Shina, Curtiss, McCulloch, and General engines are used in the teaching.



## WATER TIGHT!

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young load planes. Cinders are to be placed in the runway, as soon as weather conditions permit this work. A revolving beacon and special lighting equipment will be installed this summer. A special messenger carrying H. H. Jervis, Heron J. Abbott, Paul Wagner, and Eli Gallup, park superintendent, will have charge of the development of the new airport.

**Detroit, Mich.**

By John T. Arell

Harry Hammond, chief pilot of Staley Airways, recently announced the acquisition of Dan Taylor, Detroit transport pilot, on the instruction staff of the university school. Taylor entered commercial aviation as a pilot in 1913. He later organized and operated the Blue Bird Flying Circus, which toured the South and Middle West for a number of years.

Officers of the Humming Bird Club, an organization of 15 members who are studying aviation through the group plan to license pilots, were recently elected. They are Cliff E. Wilson, president; Frank J. Telfa, vice president; John Whitson, recording secretary; and Harold Reinhardt, treasurer.

The commercial and non-commercial officers of the 307th Observation Squadron, Michigan National Guard, recently came to Grand Rapids to attend the annual Keweenaw banquet, which was held in honor of headquarters company, 128th Infantry. Those making the trip were Maj. Floyd E. Kenna, Capt. Carl B. Squire, Lieut. Harold E. Menick, Lieut. Walter H. Nicksel, Sergt. James F. Barr, and Sergt. Donald J. Barr. Philip H. Lewis, friend of Colonel Lindbergh, also attended the dinner.

K. M. Bonner, research engineer of Langley Field, was a recent flying club speaker. He spoke on "Controls and Their Functions," and illustrated his talk with plane models.

Curtis D. Wilbur, secretary of the Navy, visited Detroit recently to inspect the all-metal airplane being built for the Navy by the Aircraft Development Co. of this city. Before leaving for Washington the secretary paid a visit to Ford Airport and called upon Henry Ford in his Dearborn office.

**Boston, Mass.**

By David Knickerbocker

The bill to permit Massachusetts to lease the Boston Airport to the city of Boston for development was defeated in committee in the State Legislature. The Senate of Boston refused to support the project since it would have meant spending \$50,000 a year for 10 yr. A plan to have the robot and tower of greater Boston undertake the work and obligations was suggested by Mayor Nichols, and he has been asked to call a conference of the officials concerned to secure action. The proposal is so vague as to appear fruitless at this time.

The officers of the city of Boston representing a smaller sum such as \$25,000 for airport improvement and enlarging the runway appear better as Mayor Nichols has appeared willing to do this. A bill to allow such expenditures (optical legislative session is required before cities and towns can spend their funds for airports) appears likely to pass the present legislature.

**Virginia, Minn.**

Flying activities here should receive a boost during the year, for C. H. Sigel has purchased a long wing Eagerhawk to be delivered about the middle of April. This plane was purchased through the Minnesota Aircraft Co. of Minneapolis, distributor for the Eagerhawk in this state, who appointed Sigel as the dealer in the Arrowhead country. Inasmuch as there are comparatively few airplanes in the northern part of Minnesota, this action should serve as a stimulus to sell a number of planes in this section during 1935.

The mass drawback at present that is preventing some of the interested people from buying is the lack of property

equipped fields with hangar space. It seems, however, that Virginia will be favored with the desired facilities this year by the assembly commissioners have expressed their approval and the city officials are willing to cooperate in securing a desirable site. The property under consideration is about 17½ mi. from the center of the town and was owned by the late Mr. Sigel as a possible location for a government landing field.

If the preliminary details incidental to the acquiring of this 500-acre tract are completed, then the numerous incidents violating this section in the summer will have no serious results for the safety factor whenever desired, for Sigel will use his Eagerhawk on special trips in addition to giving demonstration tours to interested prospects.

**Tulsa, Okla.**

By Ernest F. Fair

A detailed survey of the route proposed for the Petroleum Air Line from Tulsa to San Antonio, Tex., is being made by a committee, headed by C. L. Brinkman, of the Shell Oil Co. and Herbert Horvath of Wichita Falls, Tex. The line has been approved by the local chamber of commerce. The present plan calls for connections with Brenon, Bartlesville, Tulsa, Oklahoma City, Wichita Falls, Ardmore, and San Antonio.

H. C. Martin, Virgil Hendrix, A. E. Warren, and Ray O. Foster of Oklahoma City, with Major D. D. Holcomb, Claude Wolf, W. E. Yaggy, and Ernest Tucker of San Antonio conferred on the project. This route would be 462 mi. long. There was about 50 representatives of different cities at this meeting.

A recent visitor to Tulsa was Paul Bonaff of Oklahoma City who made the trip on an O.K.D. Travel Air. Ed King of Tulsa made a round trip to Oklahoma City recently in a Travel Air without any serious air concerns. Frank Hunter left for Oklahoma City for a business trip in his Brewster-Bronson.

**Williamstown, N. J.**

Supported by members of the local chamber of commerce, an aviation club has been organized here to promote the development of aviation in Williamstown and its vicinity. Alvin P. Lister, formerly connected with the Free Flight Flying Field, has leased a 75-acre plot of ground as an airport. Construction of a large hangar is to be started within a few weeks so as to be ready for operations this summer. The airport also will be used as Williamstown Municipal Airport and has been so designated. An aviation to aviation to land on and use the field has been given wide publicity by local business men and the chamber of commerce has erected a large sign on the end of a local garage as a mark for pilots who pass by Williamstown on their way from New York to Washington. The sign bears the words, "This is Williamstown."

**Portland, Ore.**

By John F. Anderson

Swan Island, which is rapidly being converted into the Port of Portland Airport, will be connected with the mainland by a suspension bridge in time for the strong season planned to be held by the Aero Club of Oregon, June 11. Following the suspension bridge will be used as Williamstown Municipal Airport and has been so designated. An aviation to aviation to land on and use the field has been given wide publicity by local business men and the chamber of commerce has erected a large sign on the end of a local garage as a mark for pilots who pass by Williamstown on their way from New York to Washington. The sign bears the words, "This is Williamstown."

Changes as the island will be built by June will then be made in specifications for the bridge. A contract covering out of operation will be changed. The port of Portland and lighting systems.

The port commission has named the Oregon Yacht Club the first of the basin between the island and the mainland. The



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also added provision to serve its message and challenge to the hour, promising to furnish a witness for the airport. The committee held that the message might hinder use of the lands by airplanes.

C. O. Loran, superintendent of the airport, is now a California consulting aviation table.

While B. Gray, chief of the aerological division of the U. S. Weather Bureau, arrived the latter part of March to investigate the need of an upper air weather observation station. Modified, Ore, now has the only station of the kind in the state. Applications for the observatory was recently started by the Army Club of Oregon.

John "Ding" Laughlin, former pilot for the Lincoln Flying Service, Inc., of Portland, came to Portland in his Waco 20 plane for a business visit recently. He now operates a flying school in Walla Walla, Wash.

Joseph A. Hill, president of Hill Military Academy of which Hill Army School is a division, has started teaching and giving instruction under Lieut. Gordon E. Moore, chief pilot of the school.

Edward L. Wells, government meteorologist in Portland, is giving meteorology instruction in the Hill school.

### Hood River, Ore.

About 460 people recently turned out for the dedication of the Carson Field Airport here. Several planes bringing from Carson Portland participated in the dedication. Hood River obtained a half-day holiday for the event. The port is owned after American Carson Army pilot who lost his life in France. Joe Carson, brother of the pilot, was one of the attending Portland firm.

The field is about a mile southeast of the city and is approximately 1500 ft. by 3000 ft. in size. It will be operated by the local chamber of commerce and the local American Legion Post.

The Portland delegation included Lieut. Oakley G. Kelly and Lieut. Ben Clark in an Army DH plane; Lieut. A. W. Davis and Lieut. Joe Carson in a MacCormack-Coff Co. American Eagle; Lieut. Gordon E. Moore, Hill Army School, and Lieut. J. A. Hill, in a Travel Air; Capt. Jack Clement in an American, Pasadena Corp. Travel Air; and Ted Backen in a Waco.

### Wichita Falls, Tex.

Some 200 acres of land along the Bucklehorn Highway, five miles from this city, is now owned by the Wichita Falls Airport Co., Inc., and will be developed into an airport employing with the class A requirements. Field and County, engineers and engineers, have been gathering data and statistics necessary for the construction of the field and are doing the work gratis, according to C. W. Calcutt, Jr., president of the airport company.

In speaking of contractor generosity and cooperation, Calcutt and that in Wichita Falls, engineers, teachers, lawyers, and all others connected with organizing the airport corporation had given their wholehearted support.

### Corning, N. Y.

A committee appointed by the Corning Chamber of Commerce and composed of the most part of experienced aviators who are active in the World War in rapidly preparing a definite proposition which, it is felt, will bring about the establishment of an airport here during the coming summer. The committee, furthermore, expects to make an announcement shortly which will make Corning the aviation manufacturing center in the district.

Several sites for an airport have been tentatively selected and it is planned to place the suggestions before the Corning Council and the people for their consideration. Present intention is for municipal ownership of the field with leasing of rights to private companies.

### Glen Cove, L. I., N. Y.

A group of citizens here recently expressed an accomplished job. Sites for an airport are now being considered by the citizens, one being a tract of land adjoining the Nassau Country Club. This area would be highly adaptable for such a use, it is said.

### Waco, Wis.

Flying outposts at the Alexander Airport here in spite of increasing snow and ice.

John Wood, president of the Northern Airways, recently left for Troy, O., to confer about a shipment of Waco planes from the Advance factory. The demand for Waco has been so great that the Northern Airways had in storage, and others are now on hand for at least two more.

Recently, the Midwest Airways Ryan Stoughton flew in from Milwaukee carrying a group of Milwaukee bankers to a noon-day meeting in Waco.

Ben Alexander, who has been instrumental in developing the Alexander Airport, has just purchased a Waco 20 powered with a Whetstone engine from Northern Airways. The plane will be entered in the Ford Reliability Tour and piloted by John P. Wood, who placed fourth last year.

### Burlington, Wis.

The first stage towards securing a permanent airport near Burlington were taken recently when the Burlington Airport Corp., operated by H. W. Schenck and Art. Ross, issued a 20 acre tract of land just south of the city. It is planned to build hangars this month so that they will be ready by April 25.

Art. Ross and Schenck are spending a month in training quarters at the Alexander Airport Co. The Burlington Airport Corp. will purchase Eaglecraft planes. Special air excursion will also be scheduled at Burlington, and an airplane taxi service will be operated.

### Worthington, Wis.

With the purchase of two American Eagle planes, Max Worthington, local aviator, is preparing for the spring season. His plan is to utilize the two new planes in commercial trips, including passenger service and the training of the local. Mr. Worthington also anticipates establishment of an agency for the sale of American Eagle planes.

### Toledo, O.

By Radio & News

H. L. Calhoun, referred in Toledo recently from Chester, O. C., with a Waco 20. The plane has been purchased by Lyndell C. Lewis and will be operated as one of a fleet of three planes flown by the newly formed commercial flying company Lewis as May-May, Inc.

A large sign is to be placed at Port Clinton, O., for the inclusion of aviators. The National Chamber of Commerce will erect the sign with the assistance of the Port Clinton River Club.

The city of Lorain, O., will accept the advice of the U. S. Agricultural University relative to the establishment of an airport in that city, according to a recent announcement by Marie J. C. Staden. J. E. Cassidy, director general of the university, will send a representative to Lorain immediately.

### Hartford, Conn.

The Connecticut State Board of Finance and Control has taken an opinion on the former Meritt F. Plant estate at Gales as a proposed airport site in conjunction with the proposed five-day trans-Atlantic steamship service. Portland, Me., President, R. L. and Montrose Pond, L. L. N. Y., have also been suggested as terminal points for the line with which airplane services is planned to cooperate in schedule.

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## UNITED STATES AIR FORCES

### Army to Make Aerial Survey in Florida

An aerial photographic detachment recently left Bolling Field, Washington, D. C., for Florida where an aerial map of the eastern and southern coast of that state will be made for the Coast and Geodetic Survey.

The detachment consists of Capt. Felix S. Dwyer, pilot and photographic officer; Maj. Regt. Andrew Mott, photographer, and Pvt. Irving Skaggs, mechanic. The airplane to be used is a Lockheed Amphibian similar to those used on the recent Pan-American flight. It is capable of operating from either land or water, which makes it particularly adaptable to that type of work.

The aviators will photograph a strip approximately 200 miles wide along the East Coast from Ft. Pierce Beach to Jupiter Inlet, a distance of nearly 200 mi., which contains the widest portion of the Indian River, and from Miami to the town of Everglades. The total area to be photographed is approximately 2500 sq. mi. This will be accomplished in about six weeks.

### Dawson and Fehet Pause on Canal Hop

Assistant Secretary of War F. Trubee Davison and Maj. Gen. James E. Fehet, chief of the Air Corps, are in Mexico City, in AMERICA, just to press, awaiting the arrival of an airplane to take the place of the Lockheed Amphibian which was damaged in slighting air fight. Mexican recently Dawson and Fehet were on their way to the Canal Zone in two of those craft to inspect Army air activities there and make a survey of the Zone's aerial defenses.

F. Trubee Davison and Major General Fehet left Bolling Field, Washington, D. C., on Mar. 15 to make the 7,000 air-mile trip to Panama. They were presented with new leather flying suits before the takeoff. Stops were made along the way at Fort Ransom, N. C.; Pensacola, Fla.; Galveston, Tex.; and Tampara, Mexico. Capt. Gen. E. Baker, commander in Mexico, and Lieut. Gen. H. H. Henshaw of Langley Field, Va., are the pilots.

### Warren School Students Visit Saratoga

On invitation of Commander Meyer of the new aircraft carrier Saratoga, 60 students of the Warren School of Aeronautics, Los Angeles, Calif., recently visited the great craft as it lay in San Pedro Harbor and were shown over the ship by Lieutenant Commander Grider. The students found that the trip over the naval center of the Navy's rapidly developing aircraft field was of high benefit to their study of aeronautics.

The Saratoga recently passed through the Panama Canal and steamed in California to take her place in maneuvers.

### Navy Tests New Life-Saving Suit

Test was recently made of a new safety suit for men at sea when James C. Clark jumped with a parachute from a B-1 plane into the Anacostia River at Washington, D. C. Under way in the water, Clark floated in the water, Clark floated in the water only to sink up immediately after sinking but for the suit.

The new suit fits the wearer snugly at neck and wrists, thus keeping the clothes dry. Slats are not worn, a pair of light rubber boots riding their place.

### Approve Transfer of Corps Test Plant

Approval was recently given by the Senate Committee on Military Affairs to the bill calling for an appropriation of \$600,000 to be used in transferring the experimental and test plant of the Army Air Corps to a permanent site at Wright Field, Dayton, O.

## WHERE TO FLY

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<p><b>California</b></p> <p><b>The Western College of Aeronautics</b> Mr. Wm. J. Waterhouse, President Students receive instruction in all phases of aviation. The W. C. of A. is the only school in the U. S. that has a complete flying school. The school is equipped with the latest equipment. The school is located in the heart of the aviation industry. The school is located in the heart of the aviation industry.</p> <p><b>Western College of Aeronautics</b> 411 West Street LOS ANGELES, CALIFORNIA</p>	<p><b>Chicago Area, Sales Flying Field</b> Chicago Area, Sales Flying Field Students receive instruction in all phases of aviation. The school is equipped with the latest equipment. The school is located in the heart of the aviation industry. The school is located in the heart of the aviation industry.</p> <p><b>Chicago Area, Sales Flying Field</b> Chicago Area, Sales Flying Field Students receive instruction in all phases of aviation. The school is equipped with the latest equipment. The school is located in the heart of the aviation industry. The school is located in the heart of the aviation industry.</p>	<p><b>Learn to Fly on New 1000</b> FACED PLANE COMPLETE FLIGHT AND GROUND SCHOOL \$100.00. Send for Catalogue for more information.</p> <p><b>DAVENPORT AIRPORT INC.</b> DAVENPORT, IOWA</p>
<p><b>PACIFIC TECHNICAL UNIVERSITY</b> SAN DIEGO CALIFORNIA "Air Capital of the West" Offer home study course in Aeronautics, Engineering and Practical Aviation. Students receive instruction in all phases of aviation. The school is equipped with the latest equipment. The school is located in the heart of the aviation industry. The school is located in the heart of the aviation industry.</p> <p><b>Associated with Ryan Flying School, where you can make your flying school. The school is equipped with the latest equipment. The school is located in the heart of the aviation industry. The school is located in the heart of the aviation industry.</b></p> <p><b>WHITE, FOR CATALOG</b></p>	<p><b>MIDWEST AIRWAYS CORPORATION</b> Research, Plans West airplane dealerships in Illinois and Iowa. Complete flying and ground school, using new planes.</p> <p><b>Airline Routes &amp; Transport, Inc.</b> Will take a few additional men to fly on the Chicago area. The school is equipped with the latest equipment. The school is located in the heart of the aviation industry. The school is located in the heart of the aviation industry.</p>	<p><b>Complete flying and ground instruction. \$100 per hour. \$100 per hour. Write for details. The school is equipped with the latest equipment. The school is located in the heart of the aviation industry. The school is located in the heart of the aviation industry.</b></p> <p><b>SOUTHERN BIRTING CO., INC.</b> Tulsa, Oklahoma (Phone 4000) (Tulsa 4000) (Tulsa 4000)</p>
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Climb rate	1,000 ft.	Power loading	15 lb. per sq. ft.

Despatch High Endurance Load (see table) Factor 1.47

Actual High Endurance Load (see table) Factor 1.47

PRICE LIST, DENVER FIELD



Denver, Colorado

BYRD, BENNETT CHAMBERLIN,  
 ACOSTA LINDBERGH CHAMBER  
 LIN, LEVINE NEW YORK to  
 EISELEBEN  
 GERMANY  
 3905 MI.  
 NOVILLE NEW YORK to  
 VER SUR MER  
 FRANCE  
 App. 4000 Mi.  
 MAITLAND, HEGENBERGER OAKLAND CAL  
 to WHEELER  
 FLD. HAWAII  
 2400 Miles  
 SMITH, BRONTE OAKLAND CAL  
 to MOLOKAI ISL  
 HAWAII  
 2348 Miles  
 LINDBERGH U. S.  
 TOUR  
 22,350  
 Miles  
 GOEBEL  
 DAVIS OAKLAND CAL  
 to WHEELER FLD  
 HAWAII  
 2400 Miles  
 JENSEN, SCHLUTER OAKLAND CAL  
 to WHEELER  
 FLD. HAWAII  
 2400 Miles  
 BROCK  
 SCHLEE HARBOR GRACE  
 ME. to TOKIO  
 JAPAN  
 12,295 Miles  
 GEORGE HAL  
 DEMAN, RUTH ELDER ATTEMPTED  
 TRANSLANTIC  
 FLIGHT  
 2574 Miles  
 LINDBERGH RUTH  
 NICHOLS MAJOR K.M.  
 LEE, HARRY ROGERS NEW YORK  
 to MIAMI  
 FLORIDA  
 1100 Miles  
 MAJOR L. BOURNE  
 LIEUT. J. F. PLACHTER  
 SERGEANT BELCHER  
 LT, G.C. TOWNER  
 LT, JAMES B. McHUGH  
 CORPORAL RBT. WENE  
 STULTZ WILMER  
 LEVINE, MABEL BOLL C. A.

*I*n these still early chapters of  
 aeroplane development, the  
 Wright Whirlwind Engine is  
 writing its own history.

From Byrd's trip to the North  
 Pole in 1926 through Lindbergh's  
 flights and on to the records  
 made within the last few weeks,  
 the performance of Wright En-  
 gines has been startling enough  
 to sound its name in the ears of  
 the peoples throughout the world.

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 CORPORATION

Paterson, N. J.

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 engine  
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 John Dillinger flew!*



A sectioned Whirl-  
 wind Engine will be  
 one of the features at  
 our booth in Con-  
 vention Hall at the All-  
 American Aircraft  
 Show, April 14-21,  
 Detroit, Michigan

NEW YORK TO  
 HAVANA  
 1600 Miles